

Chapter 4 – Future Conditions

Study findings are partially based on analyses that incorporate future year projections of traffic. In fact, the long-term recommendations for transportation improvements in the SR 316 Corridor are strongly linked to the projected socioeconomic conditions and forecasted travel patterns in the study area. A 20 to 25-year planning horizon is customary to use in studying a transportation corridor. In this study, a “base year” of 2000 and “horizon year” of 2025 was used to investigate conditions in the study area. Summaries of the horizon year projections for population and total employment are shown in this chapter along with forecasts of daily traffic volumes and future travel patterns.

4.1 Demographic Change

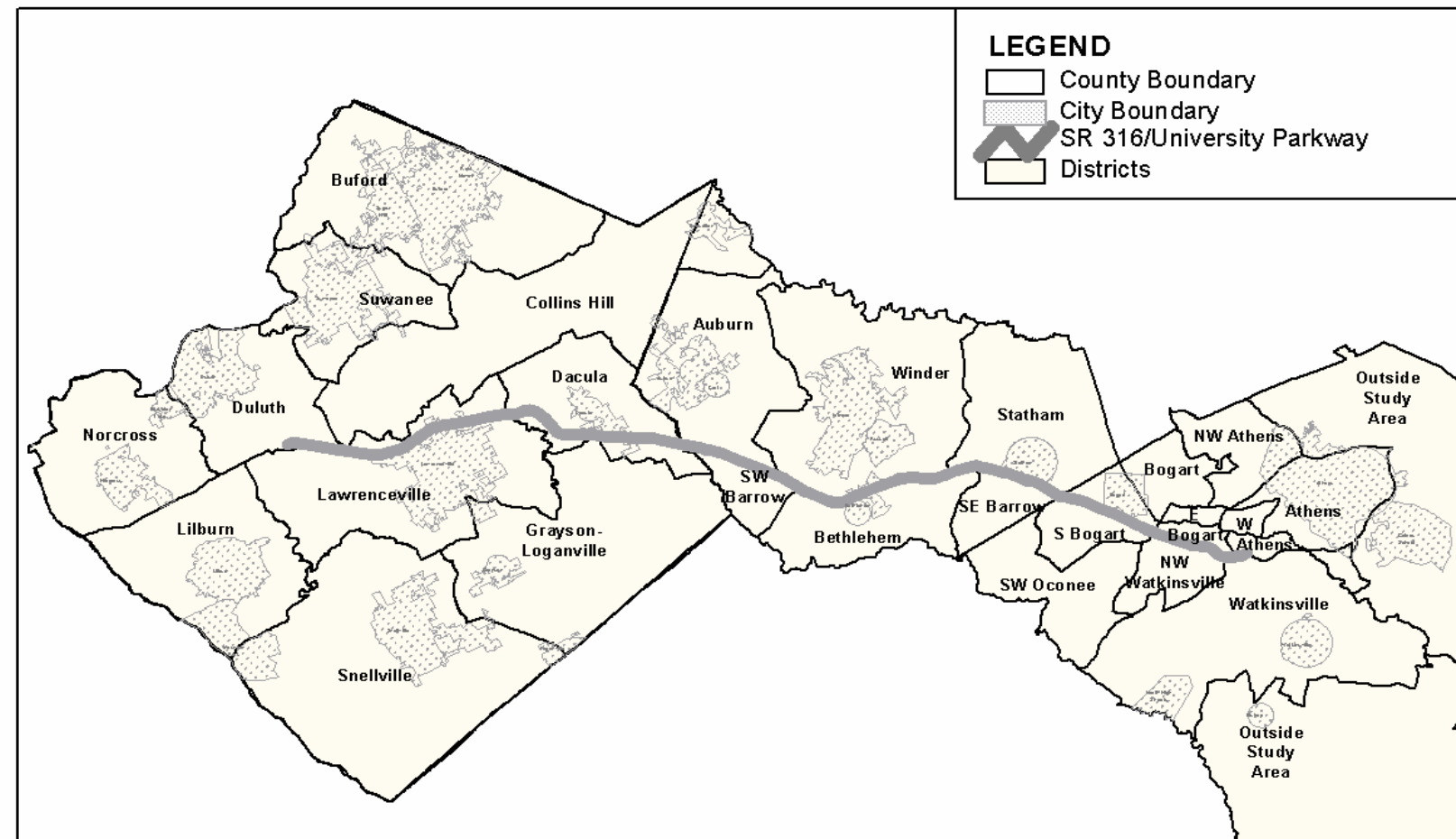
Horizon year estimates of population were based on “best fit” regression analyses using historic Census data from 1970 to 2000, including the release of new 2000 Census data. Forecasts representing both the “best fit” regression curve (the “high correlation”¹ to the historic data) and the forecast having the second-highest correlation (a “moderate correlation”) were considered significant. The socioeconomic projections were then mapped and allocated using the same TAZ's as the base year data maps.

Allocations at the TAZ level were done for the high correlation forecasts similarly to the allocations completed with base year data, utilizing each jurisdiction's future land use maps and further refinement reflecting input from the local jurisdictions. As part of this effort, meetings were held between the study team and representatives of the four counties and principal cities in the study area. Expected patterns of growth were discussed. Barriers to future development, such as availability of sewer or condition of soils, were identified. The land use and zoning maps for each jurisdiction were examined, and recent zonings of note were identified. Major planned developments that are in their early stages, such as Gateway in Bogart, were identified.

Analyses of county-level growth projections are presented in the data collection and existing conditions sections of this report. Allocations of existing development plus future growth in smaller geographic areas are summarized using population and total employment in this chapter. Route-specific traffic volume projections and travel patterns depend on the allocations of existing development and future growth to TAZ's. There are 386 TAZ's in the SR 316 travel demand model. Study area TAZ's were grouped into 25 sub-areas, referred to as districts, to assess the reasonable-

¹ The forecasts having the highest correlation to the historic data (that is, most closely matching past trends from 1970 to 2000) were used in the allocations because they are considered the most likely to occur if trends continue.

Figure 4-1
District Boundary Map



ness of socioeconomic data forecasts made in this study. Each district was assigned a label associating it with landmarks to make them easier to understand. The boundaries of each district are displayed in Figure 4-1.

Gwinnett County. Base year and horizon year population and total employment estimates allocated to sub-areas in Gwinnett County are presented in Table 4-1 and Table 4-2, respectively. Countywide, Gwinnett's population is projected to increase 111% from 2000 to 2025. At the district-

level, however, the growth rate varies from 101% in Lawrenceville and Duluth to 125% in Suwanee. With more than 100,000 person increases, the Snellville and Lilburn districts of Gwinnett County were projected to have the largest amount of growth between 2000 and 2025 in terms of population. The Gwinnett County Planning Department indicated that future growth during the 25-year planning period will be as likely to occur through redevelopment of built areas as it would in undeveloped areas of northern and eastern Gwinnett County.

State Route 316 Corridor Study

Table 4-1
Year 2000-2025 Allocations of Population - Gwinnett County

County	District Name	Population		
		2000	2025	% Change
Gwinnett	Snellville	123,410	260,219	111%
	Lilburn	107,498	226,665	111%
	Norcross	71,885	151,574	111%
	Duluth	40,541	81,486	101%
	Suwanee	15,522	34,930	125%
	Buford	41,742	92,416	121%
	Collins Hill	70,888	150,470	112%
	Lawrenceville	84,457	169,814	101%
	Dacula	10,770	22,807	112%
	Grayson-Loganville	22,713	50,395	122%
	Subtotal	589,426	1,240,776	111%

Total employment in Gwinnett County is projected to grow faster rate than its population. Countywide, estimates of total employment increase by 135%. The numbers of employees are expected to grow from 373,338 in 2000 to 878,852 persons in 2025. Like the allocation of residential growth, commercial-type growth is expected to be distributed fairly uniformly throughout the county. Redevelopments or infill in built-out areas of the county are expected to make significant contributions to Gwinnett's commercial growth. The lowest district-level percentage increase in total employment is 124% in the Dacula area. The highest is 138% in the Duluth area. In terms of absolute job growth, more than 100,000 new employees are forecast in the Norcross area between 2000 and 2025.

Table 4-2
Year 2000-2025 Allocations of Employment - Gwinnett County

County	District Name	Total Employment		
		2000	2025	% Change
Gwinnett	Snellville	33,716	79,535	136%
	Lilburn	61,086	144,130	136%
	Norcross	104,527	246,627	136%
	Duluth	39,884	95,103	138%
	Suwanee	19,310	45,560	136%
	Buford	17,880	42,187	136%
	Collins Hill	23,468	55,371	136%
	Lawrenceville	58,457	136,314	133%
	Dacula	11,354	25,398	124%
	Grayson-Loganville	3,656	8,627	136%
	Subtotal	373,338	878,852	135%

Barrow County. In terms of relative change, it is forecasted to have the highest growth of population and total employment in the study area. The population is projected to grow 237% by 2025. At the district-level, the population of Winder and Auburn is forecast to increase by 213% and 291%, respectively. Although the Winder District has the lowest growth rate, it is projected to grow the most in terms of absolute change. Up to 50,000 additional residents are forecast in the Winder area. The Statham District gains around 18,000 more persons.

Table 4-3
Year 2000-2025 Allocations of Population - Barrow County

County	District Name	Population		
		2000	2025	% Change
Barrow	Auburn	4,525	17,700	291%
	SW Barrow	1,852	6,102	229%
	Winder	24,521	76,771	213%
	Bethlehem	5,618	20,253	261%
	Statham	6,579	24,347	270%
	SE Barrow	1,710	5,634	229%
	Subtotal	44,805	150,807	237%

Barrow County's total employment is projected to grow by 253%: from 16,188 in 2000 to 57,197 in 2025. With the exception of the Statham area, commercial-type growth is expected to be relatively uniformly distributed throughout the county. In Statham, total employment is projected to grow by 399% while the percentage changes for the rest of the districts will range from the 234% to 236%. As for employment growth, more than 22,000 new employees are forecasted to in the Winder area; 7,000 are expected in the Statham District.

Table 4-4
Year 2000-2025 Allocations of Employment - Barrow County

County	District Name	Total Employment		
		2000	2025	% Change
Barrow	Auburn	2,574	8,640	236%
	SW Barrow	435	1,462	236%
	Winder	9,722	32,634	236%
	Bethlehem	1,319	4,424	235%
	Statham	1,758	8,766	399%
	SE Barrow	380	1,271	234%
	Subtotal	16,188	57,197	253%

Oconee County. The county's population is projected to grow by 73% during the 2000 to 2025 time frame. Because the southeastern portion of the

County lies outside the SR 316 study area boundary, these figures do not reflect population or employment changes anticipated in all of Oconee County. The most population growth is expected to occur in the Watkinsville District, where 12,000 more persons are projected. The next highest increase is in the Bogart area, where 2,400 more people are forecast in 2025. The SW Oconee District is projected to grow at the fastest rate, 148%, which translates into 1,800 new persons. Similar growth patterns are forecast for total employment. The Bogart and Watkinsville districts are projected to gain 4,700 and 2,400 employees, respectively, between 2000 and 2025.

Table 4-5
Year 2000-2025 Allocations of Population - Oconee County

County	District Name	Population		
		2000	2025	% Change
Oconee (Part)	SW Oconee	1,236	3,062	148%
	Bogart	3,029	5,447	80%
	E Bogart	2,155	3,589	67%
	S Bogart	600	1,119	87%
	NW Watkinsville	2,389	4,081	71%
	Watkinsville	18,195	30,319	67%
	Subtotal	27,604	47,617	73%

Table 4-6
Year 2000-2025 Allocations of Employment - Oconee County

County	District Name	Total Employment		
		2000	2025	% Change
Oconee (Part)	SW Oconee	469	817	74%
	Bogart	2,224	6,975	214%
	E Bogart	1,588	2,574	62%
	S Bogart	36	60	67%
	NW Watkinsville	286	597	109%
	Watkinsville	4,605	7,025	53%
	Subtotal	9,208	18,048	96%

Athens-Clarke County. Steady growth in population and total employment is forecast for Athens-Clarke County. Countywide, the percentage increases in population and total employment are 63% and 70%, respectively, for the portion of Athens-Clarke that are within the SR 316 study area. Year 2000 and 2025 demographic figures do not include population or employment in the eastern portion of Clarke County. The majority of population and total employment growth was assigned to the Athens district.

4.2 Traffic Projections

The overall relative change in vehicular travel demand between the base year and horizon year is expected to mirror the relative change in population and total employment in the SR 316 study area. Locally, however, traffic volume growth will vary on individual facilities. Horizon year 2025 forecasts of daily traffic on SR 316 and selected cross streets are presented in Figure 4-2 in terms of bandwidths. The forecasts shown in Figure 4-2 assume that no transportation improvements are added to the existing highway network.

Horizon year traffic volumes are highest at the western end of the SR 316 corridor, but traffic is projected to grow fastest in the center of the corridor. The highest projected daily volumes are on sections of SR 316 between SR 120 and I-85 in Gwinnett County that is no different than in the base year. On the freeway segment between Sugarloaf Parkway and Riverside Parkway the 2025 daily traffic volume on SR 316 peaks between 130,000 and 140,000 vehicles per day. In Barrow County and Oconee County, SR 316 traffic grows from 20,000 vehicles per day in the base year to 58,000 vehicles per day in the horizon year, which represents a cumulative increase of 190%. This occurs on sections between SR 324/Statham Road and US 78/SR 10 in the Statham/Bogart area. In contrast, traffic on the highest load section in Gwinnett County grows by only 59% from 2000 to 2025. Future traffic for the Year 2025 is described in more detail, by county.

Gwinnett County. Depending on which section of SR 316 in Gwinnett County is referenced, traffic is forecast to grow from 55% to 150% during the 2000-2025 time period. With no major capacity increases, there is little or no available capacity on SR 316 for additional traffic during the peak hours in the peak direction of travel. Estimates of daily traffic on the section between SR 120 and Collins Hill show increases from 59,000 vehicles per day in 2000 to 88,000 vehicles per day in 2025 (a 55% increase). East of Winder Highway/SR 8, where there is currently available capacity in the peak hour, daily traffic is expected to grow from 30,000 in 2000 to 75,000 vehicles per day in 2025, which is a 150% increase.

Traffic volumes on cross streets intersecting SR 316 are higher in Gwinnett County than elsewhere in the corridor. At the western terminus of SR 316 daily traffic on I-85, south of SR 316, is projected to exceed 300,000 vehicles per day in 2025. On SR 20 daily traffic is forecast to exceed 80,000 vehicles per day north and south of SR 316 by 2025. The section of Sugarloaf Parkway south of SR 316, is also expected to have 80,000 vehicles per day. The number of vehicles on SR 120, between SR 316 and Lawrenceville, is expected to reach 70,000 vehicles per day. In East Gwinnett, the volume on Harbins Road is projected to reach 25,000 vehicles per day on the leg that is south of SR 316. Further east, up to 20,000 vehicles per day are projected to use Drowning Creek/Old Freemans Mill north of SR 316.

Barrow County. Elsewhere in the study area, forecasted traffic growth is more consistent. Throughout Barrow County, for example, daily traffic grows more than 100% on all sections of SR 316 between 2000 and 2025. Year 2025 volumes on SR 316 in Barrow County range from 58,000 vehicles per day east of Statham to 78,000 on the section between SR 81 and SR 11.

Cross street volumes are expected to experience large increases as well. Daily traffic on the section of SR 11 that is located south of SR 316 is expected to reach 30,000 vehicles per day in 2025. Traffic on other Barrow County cross streets will be much lighter. Daily traffic forecasted on the section of SR 324/Statham Road south of SR 316 was 2,500 vehicles per day.

Oconee County. Traffic growth on sections of SR 316 through Oconee County is expected to exceed 100% between 2000 and 2025. West of the US 78/SR 10 interchange, daily traffic is projected to increase by 190% going from 20,000 vehicles per day in 2000 to 58,000 vehicles per day in 2025. This was the lowest volume section of SR 316 in the base year and is expected to remain that way to 2025. East of the US 78/SR 10 interchange, however, future traffic volumes increase to almost 80,000 vehicles per day. This is expected to occur on the section of SR 316 between the Oconee Connector and the Athens Loop.

Cross street volumes in Oconee County are expected to be much higher near Athens in comparison with the Bogart/Statham area. The Athens Loop/SR 10 is expected to carry daily volumes approaching 60,000 vehicles per day in 2025 just south of SR 316. Nearby, the US 78/SR 10 and Oconee Connector are expected to have relatively high volumes. Traffic volumes on US 78/SR 10 near SR 316 is projected to be 40,000-50,000 vehicles per day by the 2025. The year 2025 projection for the Oconee Connector, immediately south of SR 316, is 30,000 vehicles per day.

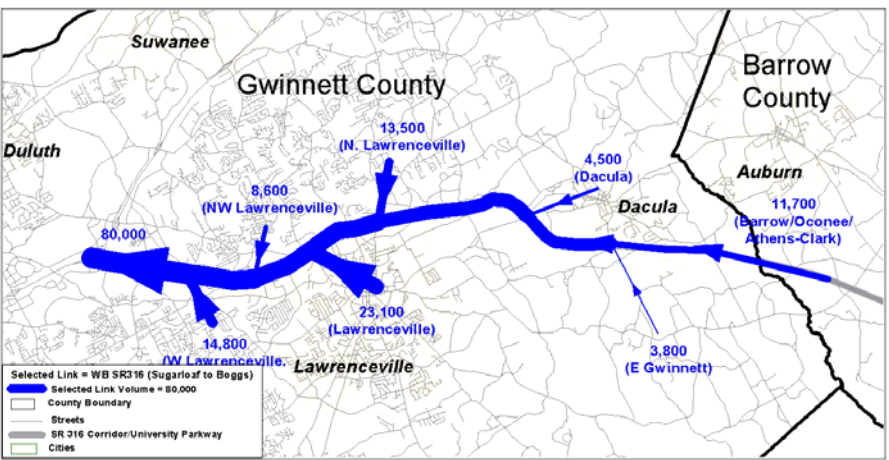
4.3 Traffic Patterns

The travel demand model was used to generate horizon year origin-destination patterns. Figures 4-3, 4-4, and 4-5 show bandwidth traffic flow maps illustrating year 2025 origin-destination travel patterns in Gwinnett, Barrow and Oconee Counties, respectively. These travel patterns were computed by assigning Year 2025 vehicle trips to the base year highway network. Future travel patterns will be different from those shown in this section if major transportation improvements are implemented in the future. Travel patterns on selected sections of SR 316, one for each county, are presented using bandwidths and directional arrows.

Gwinnett County. Future travel patterns of motorists using SR 316 in Gwinnett County are represented by westbound trips between Sugarloaf Parkway and Boggs Road. A total of 80,000 vehicles per day are forecast in this direction of travel. The direction from where these vehicles originate are shown by means of bandwidths and arrows in Figure 4-3. The model projects the largest share of traffic on this selected link to come from the Lawrenceville and Snellville areas. These trips amount to 37,900 vehicles per day with 14,800 coming from the western Lawrenceville/Snellville direction and 23,100 from the center of Lawrenceville and eastern Lawrenceville. The 2025 volume of traffic coming from the Lawrenceville/Snellville area and south of SR 316 is almost as high as the total amount of traffic using that link in the base year 2000, 40,000 vehicles per day.

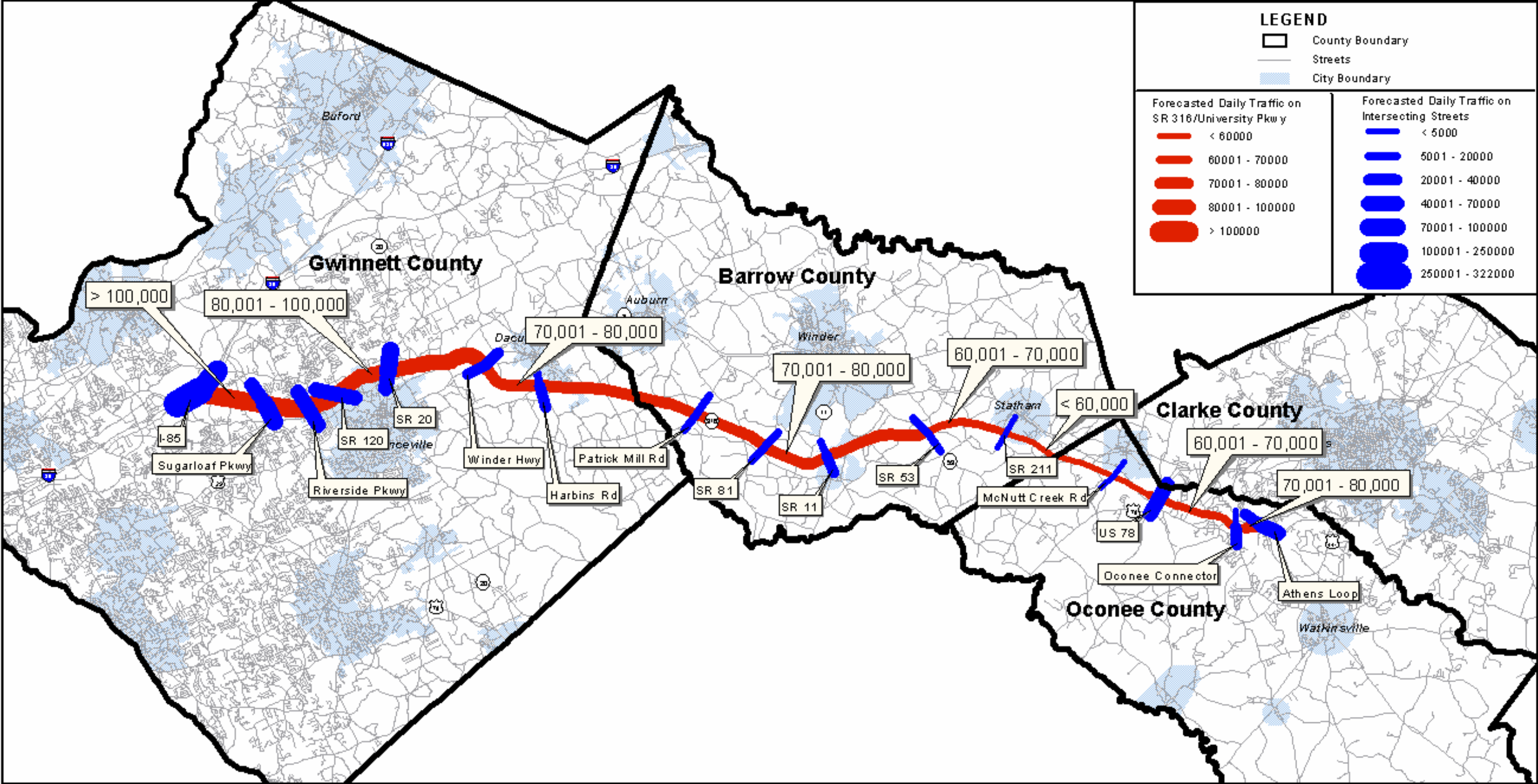
From 2000 to 2025, the total number of long distance trips using westbound SR 316 and coming from the direction of Barrow, Oconee and Athens-Clarke counties is forecast to drop from 12,300 to 11,700 vehicles per day. This change is not the result of a shrinking travel market. Instead it illustrates how travel patterns will change if no major transportation improvements are implemented. Without capacity improvements in the SR 316 corridor, the travel model predicts that longer distance travel markets will not be served in the future. The model is assigning longer distance trips to the local street system which allows motorists to reach their destinations at least as fast or even faster as routes using SR 316.

Figure 4-3
Year 2025 Travel Patterns - Gwinnett County



State Route 316 Corridor Study

Figure 4-2
2025 Traffic Bandwidth Map



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Barrow County. Travel patterns of motorists using SR 316 in Barrow County are shown in Figure 4-4 using both directions of travel on the portion between SR 81 and SR 11. A total of 75,000 vehicles per day are forecast to use this section in both directions. The bandwidths and arrows in Figure 4-4 show the directions from which these vehicles originated. The largest market segment using this selected link comes from Gwinnett County and other places west of Barrow County. A total of 29,100 vehicles per day, or 78% of the total traffic, is expected to come from the direction of Gwinnett County and places further west. This represents an increase of 7% compared to the base year. For westbound travel, an estimated 17,900 daily trips or 48% come from the direction of Oconee County and Athens-Clarke counties. This is slightly less than the market share estimated for the year 2000. A higher proportion of trips in the westbound direction of travel, but still less than 50%, access SR 316 in Barrow County. The largest numbers of these trips come from the direction of Bethlehem and Walton County.

Figure 4-4
Year 2025 Travel Patterns - Barrow County

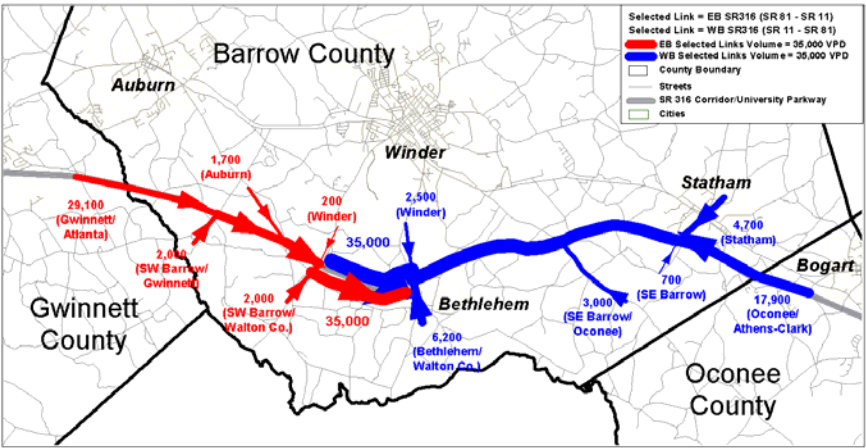
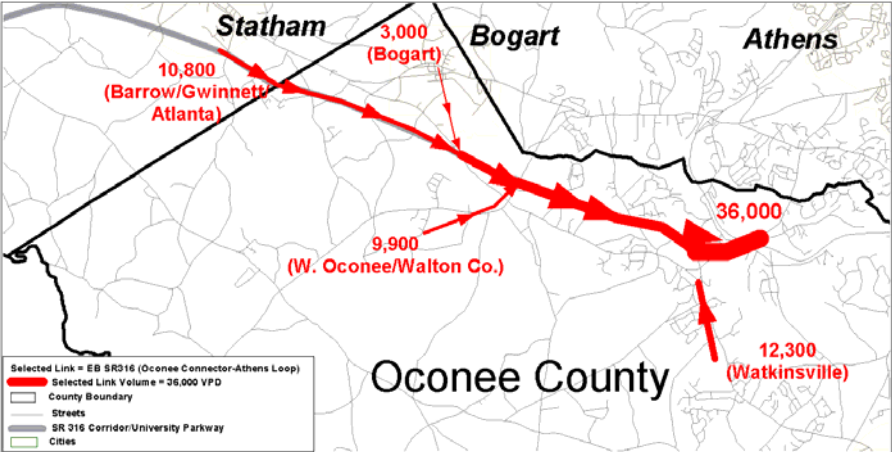


Figure 4-5
Year 2025 Travel Patterns - Oconee County



Oconee County. Year 2025 traffic patterns on SR 316 in Oconee County are illustrated by eastbound trips on SR 316 between the Oconee Connector and the Athens Loop/SR 10. A total of 38,000 vehicles per day are expected to travel eastbound on this link in 2025. Traffic volume bandwidths presented in Figure 4-5 show the direction from which vehicles using the selected link came from. Similar to the patterns displayed for the year 2000, the largest contribution of traffic using this selected link is forecast to come from the Watkinsville area by way of Mars Hill Road and the Oconee Connector. A total of 12,300 vehicles per day or 32% come from the direction of the Oconee Connector. The second largest number of trips using this selected link will come from outside Oconee County in the direction of Barrow County, Gwinnett County and metro Atlanta. An estimated 10,800 trips per day or 28% were estimated to come from Barrow or places further west.